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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,448	11/24/2008	Samu Taulu	032700-9	4219
78198 7590 07/22/2011 Studebaker & Brackett PC One Fountain Square 11911 Freedom Drive, Suite 750 Reston, VA 20190				
EXAMINER HUNTLEY, DANIEL CARROLL				
ART UNIT		PAPER NUMBER		
3737				
NOTIFICATION DATE		DELIVERY MODE		
07/22/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@sbpatentlaw.com

Office Action Summary

Application No.

10/586,448

Applicant(s)

TAULU ET AL.

Examiner

DANIEL HUNTLEY

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claim 10 is objected to because of the following informalities: Claim 10 is grammatically incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2 and 4-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the measurement object" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the known geometry" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the signal measured" in line 17. There is insufficient antecedent basis for this limitation in the claim.

Claims 2 and 8 recite the limitation "the measurement signal". There is insufficient antecedent basis for this limitation in the claim.

In claim 6, it is unclear as to what is meant by 'adapted'.

Claim 7 recites the limitation "the DC signal" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the original signal" in line 5. There is insufficient antecedent basis for this limitation in the claim.

In claim 9, it is unclear as to how an MEG measurement affects the movement of the object and instrument.

Claim 10 recites the limitation "the measurement signals" in line 6. There is insufficient antecedent basis for this limitation in the claim.

In claim 11, it is unclear as to which of the many signals previously referred to is the registered signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 7,062,391 B2 (Wilson('391)) in view of US Publication 2002/0151779 A1 (Avrin('779))

In re claims 1-2, 5, and 8, Wilson('391) teach a method of signal processing in which method the measurement object and the measuring instrument move with respect to one another, wherein the measurement object is freely movable, and that determining the movement of the measuring instrument (item 21) and the measurement object with respect to one another based on the signals measured using the measuring instrument (col 2, lns 36-49 and lns 62-67). Further, Wilson('391) teach modeling of the magnetic field and use of spherical harmonic functions to compensate for the motion of a measurement object (subject's head) (col 1, lns 50-65; col 6, lns 20-67) as if the subject's head remained stationary (col 6, lns 50-54). The examiner interprets this representation to describe modeling measurement object movement as a movement of the measurement instrument around a stationary object as the applicant's specification suggests on page 5, lines 9-12.

Further, Wilson('391) teach presenting the signal in a signal space whose basis functions and vector coefficients have been attached to the co-ordinates of the measurement object (col 5, lns 20-67; col 7, lns 32-54). The examiner further notes that the modeling and motion compensation as described in Wilson('391) occurs over a time span (col 1, lns 25-32).

The examiner notes that Wilson('391) do not expressly teach separating static signals from measurement signals or that the positions are determined in real time, but separating signals of varying field strength or other parameters is well-known as evidenced by the teaching of Avrin('779), in the field of magnetometers, who teach cancellation of the applied field [0030]-

[0031] which the examiner interprets as describing 'signal separation' and that the instrument operates in real-time to facilitate telemedicine procedures [0050].

Hence, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the signal processing method and device disclosed by Wilson('391) with the magnetometer/SQUID device disclosed by Avrin('779) in order to separate and detect an object's movement during a procedure in order to cancel out random movement/noise that negatively affects the desired measurement signal.

In re claims 4 and 6, Wilson('391) and Avrin('779) teach the invention as described above, and further, Wilson('391) teach a method of modeling magnetic fields for calculating inadvertent motion during a procedure (abstract) utilizing spherical harmonic functions (col 4, lns 1-15) and minimum norm estimates (col 4, lns 48-55). The examiner interprets this inadvertent motion detection to describe partial elimination of external interference.

In re claims 7 and 11, the examiner notes that the use of high-pass filters is a well-known expedient in the signal processing art for separating signals having distinguishable components such as frequency.

In re claim 9, Wilson('391) and Avrin('779) teach the invention as described above, and further Avrin('779) teach the use of a patient intentionally moving eyes to enhance sensitivity ([0046]). Wilson('391) also teach head movement during MEG measurement (col 1, lns 25-48)

In re claim 10, Wilson('391) and Avrin('779) teach the invention as described above, and further Avrin('779) teach the detection and positioning of ferromagnetic foreign bodies within the object (abstract; [0008]; [0046]). Wilson('391) additionally disclose magnetic objects or pieces attached to the measurement object (col 2, lns 49-51).

Response to Arguments

Applicant's arguments with respect to claims 1-2 and 4-11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL HUNTLEY whose telephone number is (571)270-1217. The examiner can normally be reached on Monday through Friday, 7:30-4, alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/

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Supervisory Patent Examiner, Art Unit
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/DANIEL HUNTLEY/
Examiner, Art Unit 3737